

SEQUENCE LISTING

<110> Mulroy, Robert
Krane, Ian

<120> NON-GLYCOSYLATED HUMAN
ALPHA-FETOPROTEIN, METHODS OF PRODUCTION, AND USES THEREOF

<130> 06727/012001

<150> 10/030,351

<151> 2002-06-07

<150> PCT/US00/00264

<151> 2000-01-06

<150> 60/114,995

<151> 1999-01-06

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Lys	Gln	Glu	Phe	Leu	Ile	Asn	Leu	Val	Lys	Gln	Lys	Pro	Gln	Ile	Thr		
	550					555				560							
gag	gaa	caa	ctt	gag	gct	gtc	att	gca	gat	ttc	tca	ggc	ctg	ttg	gag	1784	
Glu	Glu	Gln	Leu	Glu	Ala	Val	Ile	Ala	Asp	Phe	Ser	Gly	Leu	Leu	Glu		
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aaa	tgc	tgc	caa	ggc	cag	gaa	cag	gaa	gtc	tgc	ttt	gct	gaa	gag	gga	1832	
Lys	Cys	Cys	Gln	Gly	Gln	Glu	Gln	Glu	Val	Cys	Phe	Ala	Glu	Glu	Gly		
			585					590						595			
caa	aaa	ctg	att	tca	aaa	act	cgt	gct	gct	ttg	gga	ggt	taa			1874	
Gln	Lys	Leu	Ile	Ser	Lys	Thr	Arg	Ala	Ala	Leu	Gly	Val	*				
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attacttcag	gggaagagaa	gacaaaacga	gtcttttcatt	cggtgtgaac	ttttctcttt	1934											
aattttaact	gatttaacac	tttttgtaga	ttaatgaaat	gataaagact	tttatgtgag	1994											
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<212> PRT

<213> Homo sapiens

<220>

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Asp	Ser	Tyr	Gln	Cys	Thr	Ala	Glu	Ile	Ser	Leu	Ala	Asp	Leu	Ala	Thr		
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Ile	Phe	Phe	Ala	Gln	Phe	Val	Gln	Glu	Ala	Thr	Tyr	Lys	Glu	Val	Ser		
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Lys	Met	Val	Lys	Asp	Ala	Leu	Thr	Ala	Ile	Glu	Lys	Pro	Thr	Gly	Asp		
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Glu	Gln	Ser	Ser	Gly	Cys	Leu	Glu	Asn	Gln	Leu	Pro	Ala	Phe	Leu	Glu		
				85					90					95			
Glu	Leu	Cys	His	Glu	Lys	Glu	Ile	Leu	Glu	Lys	Tyr	Gly	His	Ser	Asp		
			100					105					110				
Cys	Cys	Ser	Gln	Ser	Glu	Glu	Gly	Arg	His	Asn	Cys	Phe	Leu	Ala	His		
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Lys	Lys	Pro	Thr	Pro	Ala	Ser	Ile	Pro	Leu	Phe	Gln	Val	Pro	Glu	Pro		
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Val	Thr	Ser	Cys	Glu	Ala	Tyr	Glu	Glu	Asp	Arg	Glu	Thr	Phe	Met	Asn		
145					150					155					160		
Lys	Phe	Ile	Tyr	Glu	Ile	Ala	Arg	Arg	His	Pro	Phe	Leu	Tyr	Ala	Pro		
				165					170					175			
Thr	Ile	Leu	Leu	Trp	Ala	Ala	Arg	Tyr	Asp	Lys	Ile	Ile	Pro	Ser	Cys		
			180					185					190				
Cys	Lys	Ala	Glu	Asn	Ala	Val	Glu	Cys	Phe	Gln	Thr	Lys	Ala	Ala	Thr		
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Val	Thr	Lys	Glu	Leu	Arg	Glu	Ser	Ser	Leu	Leu	Asn	Gln	His	Ala	Cys		
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Ala	Val	Met	Lys	Asn	Phe	Gly	Thr	Arg	Thr	Phe	Gln	Ala	Ile	Thr	Val		
225					230					235					240		
Thr	Lys	Leu	Ser	Gln	Lys	Phe	Thr	Lys	Val	Xaa	Phe	Thr	Glu	Ile	Gln		
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Lys	Leu	Val	Leu	Asp	Val	Ala	His	Val	His	Glu	His	Cys	Cys	Arg	Gly		
			260					265					270				
Asp	Val	Leu	Asp	Cys	Leu	Gln	Asp	Gly	Glu	Lys	Ile	Met	Ser	Tyr	Ile		
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Cys	Ser	Gln	Gln	Asp	Thr	Leu	Ser	Asn	Lys	Ile	Thr	Glu	Cys	Cys	Lys		
	290					295					300						
Leu	Thr	Thr	Leu	Glu	Arg	Gly	Gln	Cys	Ile	Ile	His	Ala	Glu	Asn	Asp		
305					310					315					320		
Glu	Lys	Pro	Glu	Gly	Leu	Ser	Pro	Asn	Leu	Asn	Arg	Phe	Leu	Gly	Asp		
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Arg	Asp	Phe	Asn	Gln	Phe	Ser	Ser	Gly	Glu	Lys	Asn	Ile	Phe	Leu	Ala		
			340					345					350				
Ser	Phe	Val	His	Glu	Tyr	Ser	Arg	Arg	His	Pro	Gln	Leu	Ala	Val	Ser		
	355						360					365					
Val	Ile	Leu	Arg	Val	Ala	Lys	Gly	Tyr	Gln	Glu	Leu	Leu	Glu	Lys	Cys		
	370					375					380						
Phe	Gln	Thr	Glu	Asn	Pro	Leu	Glu	Cys	Gln	Asp	Lys	Gly	Glu	Glu	Glu		
385					390					395					400		
Leu	Gln	Lys	Tyr	Ile	Gln	Glu	Ser	Gln	Ala	Leu	Ala	Lys	Arg	Ser	Cys		
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Gly	Leu	Phe	Gln	Lys	Leu	Gly	Glu	Tyr	Tyr	Leu	Gln	Asn	Ala	Phe	Leu		
			420					425					430				
Val	Ala	Tyr	Thr	Lys	Lys	Ala	Pro	Gln	Leu	Thr	Ser	Ser	Glu	Leu	Met		
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Ala	Ile	Thr	Arg	Lys	Met	Ala	Ala	Thr	Ala	Ala	Thr	Cys	Cys	Gln	Leu		
	450					455					460						
Ser	Glu	Asp	Lys	Leu	Leu	Ala	Cys	Gly	Glu	Gly	Ala	Ala	Asp	Ile	Ile		
465					470					475					480		

Ile	Gly	His	Leu	Cys	Ile	Arg	His	Glu	Met	Thr	Pro	Val	Asn	Pro	Gly	
				485					490					495		
Val	Gly	Gln	Cys	Cys	Thr	Ser	Ser	Tyr	Ala	Asn	Arg	Arg	Pro	Cys	Phe	
			500					505					510			
Ser	Ser	Leu	Val	Val	Asp	Glu	Thr	Tyr	Val	Pro	Pro	Ala	Phe	Ser	Asp	
		515					520					525				
Asp	Lys	Phe	Ile	Phe	His	Lys	Asp	Leu	Cys	Gln	Ala	Gln	Gly	Val	Ala	
	530					535					540					
Leu	Gln	Thr	Met	Lys	Gln	Glu	Phe	Leu	Ile	Asn	Leu	Val	Lys	Gln	Lys	
545					550					555					560	
Pro	Gln	Ile	Thr	Glu	Glu	Gln	Leu	Glu	Ala	Val	Ile	Ala	Asp	Phe	Ser	
				565					570					575		
Gly	Leu	Leu	Glu	Lys	Cys	Cys	Gln	Gly	Gln	Glu	Gln	Glu	Val	Cys	Phe	
			580					585					590			
Ala	Glu	Glu	Gly	Gln	Lys	Leu	Ile	Ser	Lys	Thr	Arg	Ala	Ala	Leu	Gly	
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Val																

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Arg	Thr	Leu	His	Arg	Asn	Glu	Tyr	Gly	Ile	Ala	Ser	Ile	Leu	Asp	Ser	
1				5				10						15		
tac caa tgt act gca gag ata agt tta gct gac ctg gct acc ata ttt																96
Tyr	Gln	Cys	Thr	Ala	Glu	Ile	Ser	Leu	Ala	Asp	Leu	Ala	Thr	Ile	Phe	
			20					25					30			
ttt gcc cag ttt gtt caa gaa gcc act tac aag gaa gta agc aaa atg																144
Phe	Ala	Gln	Phe	Val	Gln	Glu	Ala	Thr	Tyr	Lys	Glu	Val	Ser	Lys	Met	
		35					40					45				
gtg aaa gat gca ttg act gca att gag aaa ccc act gga gat gaa cag																192
Val	Lys	Asp	Ala	Leu	Thr	Ala	Ile	Glu	Lys	Pro	Thr	Gly	Asp	Glu	Gln	
		50				55					60					
tct tca ggg tgt tta gaa aac cag cta cct gcc ttt ctg gaa gaa ctt																240
Ser	Ser	Gly	Cys	Leu	Glu	Asn	Gln	Leu	Pro	Ala	Phe	Leu	Glu	Glu	Leu	
		65				70				75					80	
tgc cat gag aaa gaa att ttg gag aag tac gga cat tca gac tgc tgc																288
Cys	His	Glu	Lys	Glu	Ile	Leu	Glu	Lys	Tyr	Gly	His	Ser	Asp	Cys	Cys	
				85					90					95		
agc caa agt gaa gag gga aga cat aac tgt ttt ctt gca cac aaa aag																336

Ser	Gln	Ser	Glu	Glu	Gly	Arg	His	Asn	Cys	Phe	Leu	Ala	His	Lys	Lys		
			100					105					110				
ccc	act	cca	gca	tcg	atc	cca	ctt	ttc	caa	gtt	cca	gaa	cct	gtc	aca	384	
Pro	Thr	Pro	Ala	Ser	Ile	Pro	Leu	Phe	Gln	Val	Pro	Glu	Pro	Val	Thr		
		115					120				125						
agc	tgt	gaa	gca	tat	gaa	gaa	gac	agg	gag	aca	ttc	atg	aac	aaa	ttc	432	
Ser	Cys	Glu	Ala	Tyr	Glu	Glu	Asp	Arg	Glu	Thr	Phe	Met	Asn	Lys	Phe		
	130					135				140							
att	tat	gag	ata	gca	aga	agg	cat	ccc	ttc	ctg	tat	gca	cct	aca	att	480	
Ile	Tyr	Glu	Ile	Ala	Arg	Arg	His	Pro	Phe	Leu	Tyr	Ala	Pro	Thr	Ile		
145					150					155					160		
ctt	ctt	tgg	gct	gct	cgc	tat	gac	aaa	ata	att	cca	tct	tgc	tgc	aaa	528	
Leu	Leu	Trp	Ala	Ala	Arg	Tyr	Asp	Lys	Ile	Ile	Pro	Ser	Cys	Cys	Lys		
			165					170						175			
gct	gaa	aat	gca	gtt	gaa	tgc	ttc	caa	aca	aag	gca	gca	aca	gtt	aca	576	
Ala	Glu	Asn	Ala	Val	Glu	Cys	Phe	Gln	Thr	Lys	Ala	Ala	Thr	Val	Thr		
			180					185					190				
aaa	gaa	tta	aga	gaa	agc	agc	ttg	tta	aat	caa	cat	gca	tgt	gca	gta	624	
Lys	Glu	Leu	Arg	Glu	Ser	Ser	Leu	Leu	Asn	Gln	His	Ala	Cys	Ala	Val		
		195					200					205					
atg	aaa	aat	ttt	ggg	acc	cga	act	ttc	caa	gcc	ata	act	gtt	act	aaa	672	
Met	Lys	Asn	Phe	Gly	Thr	Arg	Thr	Phe	Gln	Ala	Ile	Thr	Val	Thr	Lys		
	210					215					220						
ctg	agt	cag	aag	ttt	acc	aaa	gtt	can	ttt	act	gaa	atc	cag	aaa	cta	720	
Leu	Ser	Gln	Lys	Phe	Thr	Lys	Val	Xaa	Phe	Thr	Glu	Ile	Gln	Lys	Leu		
225					230					235					240		
gtc	ctg	gat	gtg	gcc	cat	gta	cat	gag	cac	tgt	tgc	aga	gga	gat	gtg	768	
Val	Leu	Asp	Val	Ala	His	Val	His	Glu	His	Cys	Cys	Arg	Gly	Asp	Val		
			245					250						255			
ctg	gat	tgt	ctg	cag	gat	ggg	gaa	aaa	atc	atg	tcc	tac	ata	tgt	tct	816	
Leu	Asp	Cys	Leu	Gln	Asp	Gly	Glu	Lys	Ile	Met	Ser	Tyr	Ile	Cys	Ser		
			260					265					270				
caa	caa	gac	act	ctg	tca	aac	aaa	ata	aca	gaa	tgc	tgc	aaa	ctg	acc	864	
Gln	Gln	Asp	Thr	Leu	Ser	Asn	Lys	Ile	Thr	Glu	Cys	Cys	Lys	Leu	Thr		
		275					280					285					
acg	ctg	gaa	cgt	ggg	caa	tgt	ata	att	cat	gca	gaa	aat	gat	gaa	aaa	912	
Thr	Leu	Glu	Arg	Gly	Gln	Cys	Ile	Ile	His	Ala	Glu	Asn	Asp	Glu	Lys		
	290					295					300						
cct	gaa	ggg	cta	tct	cca	aat	cta	aac	agg	ttt	tta	gga	gat	aga	gat	960	
Pro	Glu	Gly	Leu	Ser	Pro	Asn	Leu	Asn	Arg	Phe	Leu	Gly	Asp	Arg	Asp		
305					310				315						320		
ttt	aac	caa	ttt	tct	tca	ggg	gaa	aaa	aat	atc	ttc	ttg	gca	agt	ttt	1008	
Phe	Asn	Gln	Phe	Ser	Ser	Gly	Glu	Lys	Asn	Ile	Phe	Leu	Ala	Ser	Phe		
				325					330					335			

gtt cat gaa tat tca aga aga cat cct cag ctt gct gtc tca gta att	1056
Val His Glu Tyr Ser Arg Arg His Pro Gln Leu Ala Val Ser Val Ile	
340 345 350	
cta aga gtt gct aaa gga tac cag gag tta ttg gag aag tgt ttc cag	1104
Leu Arg Val Ala Lys Gly Tyr Gln Glu Leu Leu Glu Lys Cys Phe Gln	
355 360 365	
act gaa aac cct ctt gaa tgc caa gat aaa gga gaa gaa gaa tta cag	1152
Thr Glu Asn Pro Leu Glu Cys Gln Asp Lys Gly Glu Glu Glu Leu Gln	
370 375 380	
aaa tac atc cag gag agc caa gca ttg gca aag cga agc tgc ggc ctc	1200
Lys Tyr Ile Gln Glu Ser Gln Ala Leu Ala Lys Arg Ser Cys Gly Leu	
385 390 395 400	
ttc cag aaa cta gga gaa tat tac tta caa aat gcg ttt ctc gtt gct	1248
Phe Gln Lys Leu Gly Glu Tyr Tyr Leu Gln Asn Ala Phe Leu Val Ala	
405 410 415	
tac aca aag aaa gcc ccc cag ctg acc tcg tcg gag ctg atg gcc atc	1296
Tyr Thr Lys Lys Ala Pro Gln Leu Thr Ser Ser Glu Leu Met Ala Ile	
420 425 430	
acc aga aaa atg gca gcc aca gca gcc act tgt tgc caa ctc agt gag	1344
Thr Arg Lys Met Ala Ala Thr Ala Thr Cys Cys Gln Leu Ser Glu	
435 440 445	
gac aaa cta ttg gcc tgt ggc gag gga gcg gct gac att att atc gga	1392
Asp Lys Leu Leu Ala Cys Gly Glu Gly Ala Ala Asp Ile Ile Ile Gly	
450 455 460	
cac tta tgt atc aga cat gaa atg act cca gta aac cct ggt gtt ggc	1440
His Leu Cys Ile Arg His Glu Met Thr Pro Val Asn Pro Gly Val Gly	
465 470 475 480	
cag tgc tgc act tct tca tat gcc aac agg agg cca tgc ttc agc agc	1488
Gln Cys Cys Thr Ser Ser Tyr Ala Asn Arg Arg Pro Cys Phe Ser Ser	
485 490 495	
ttg gtg gtg gat gaa aca tat gtc cct cct gca ttc tct gat gac aag	1536
Leu Val Val Asp Glu Thr Tyr Val Pro Pro Ala Phe Ser Asp Asp Lys	
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ttc att ttc cat aag gat ctg tgc caa gct cag ggt gta gcg ctg caa	1584
Phe Ile Phe His Lys Asp Leu Cys Gln Ala Gln Gly Val Ala Leu Gln	
515 520 525	
acg atg aag caa gag ttt ctc att aac ctt gtg aag caa aag cca caa	1632
Thr Met Lys Gln Glu Phe Leu Ile Asn Leu Val Lys Gln Lys Pro Gln	
530 535 540	
ata aca gag gaa caa ctt gag gct gtc att gca gat ttc tca ggc ctg	1680
Ile Thr Glu Glu Gln Leu Glu Ala Val Ile Ala Asp Phe Ser Gly Leu	
545 550 555 560	
ttg gag aaa tgc tgc caa ggc cag gaa cag gaa gtc tgc ttt gct gaa	1728
Leu Glu Lys Cys Cys Gln Gly Gln Glu Gln Glu Val Cys Phe Ala Glu	
565 570 575	

gag gga caa aaa ctg att tca aaa act cgt gct gct ttg gga gtt taa 1776
 Glu Gly Gln Lys Leu Ile Ser Lys Thr Arg Ala Ala Leu Gly Val *
 580 585 590

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 <213> Homo sapiens

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 Phe Ala Gln Phe Val Gln Glu Ala Thr Tyr Lys Glu Val Ser Lys Met
 35 40 45
 Val Lys Asp Ala Leu Thr Ala Ile Glu Lys Pro Thr Gly Asp Glu Gln
 50 55 60
 Ser Ser Gly Cys Leu Glu Asn Gln Leu Pro Ala Phe Leu Glu Glu Leu
 65 70 75 80
 Cys His Glu Lys Glu Ile Leu Glu Lys Tyr Gly His Ser Asp Cys Cys
 85 90
 Ser Gln Ser Glu Gly Arg His Asn Cys Phe Leu Ala His Lys Lys
 100 105 110
 Pro Thr Pro Ala Ser Ile Pro Leu Phe Gln Val Pro Glu Pro Val Thr
 115 120 125
 Ser Cys Glu Ala Tyr Glu Glu Asp Arg Glu Thr Phe Met Asn Lys Phe
 130 135 140
 Ile Tyr Glu Ile Ala Arg Arg His Pro Phe Leu Tyr Ala Pro Thr Ile
 145 150 155 160
 Leu Leu Trp Ala Ala Arg Tyr Asp Lys Ile Ile Pro Ser Cys Cys Lys
 165 170 175
 Ala Glu Asn Ala Val Glu Cys Phe Gln Thr Lys Ala Ala Thr Val Thr
 180 185 190
 Lys Glu Leu Arg Glu Ser Ser Leu Leu Asn Gln His Ala Cys Ala Val
 195 200 205
 Met Lys Asn Phe Gly Thr Arg Thr Phe Gln Ala Ile Thr Val Thr Lys
 210 215 220
 Leu Ser Gln Lys Phe Thr Lys Val Gln Phe Thr Glu Ile Gln Lys Leu
 225 230 235 240
 Val Leu Asp Val Ala His Val His Glu His Cys Cys Arg Gly Asp Val
 245 250 255
 Leu Asp Cys Leu Gln Asp Gly Glu Lys Ile Met Ser Tyr Ile Cys Ser
 260 265 270
 Gln Gln Asp Thr Leu Ser Asn Lys Ile Thr Glu Cys Cys Lys Leu Thr
 275 280 285
 Thr Leu Glu Arg Gly Gln Cys Ile Ile His Ala Glu Asn Asp Glu Lys
 290 295 300
 Pro Glu Gly Leu Ser Pro Asn Leu Asn Arg Phe Leu Gly Asp Arg Asp
 305 310 315 320
 Phe Asn Gln Phe Ser Ser Gly Glu Lys Asn Ile Phe Leu Ala Ser Phe
 325 330 335
 Val His Glu Tyr Ser Arg Arg His Pro Gln Leu Ala Val Ser Val Ile
 340 345 350
 Leu Arg Val Ala Lys Gly Tyr Gln Glu Leu Leu Glu Lys Cys Phe Gln
 355 360 365

Thr	Glu	Asn	Pro	Leu	Glu	Cys	Gln	Asp	Lys	Gly	Glu	Glu	Glu	Leu	Gln
370						375					380				
Lys	Tyr	Ile	Gln	Glu	Ser	Gln	Ala	Leu	Ala	Lys	Arg	Ser	Cys	Gly	Leu
385					390					395					400
Phe	Gln	Lys	Leu	Gly	Glu	Tyr	Tyr	Leu	Gln	Asn	Ala	Phe	Leu	Val	Ala
				405					410					415	
Tyr	Thr	Lys	Lys	Ala	Pro	Gln	Leu	Thr	Ser	Ser	Glu	Leu	Met	Ala	Ile
			420					425					430		
Thr	Arg	Lys	Met	Ala	Ala	Thr	Ala	Ala	Thr	Cys	Cys	Gln	Leu	Ser	Glu
		435					440					445			
Asp	Lys	Leu	Leu	Ala	Cys	Gly	Glu	Gly	Ala	Ala	Asp	Ile	Ile	Ile	Gly
	450					455					460				
His	Leu	Cys	Ile	Arg	His	Glu	Met	Thr	Pro	Val	Asn	Pro	Gly	Val	Gly
465					470					475					480
Gln	Cys	Cys	Thr	Ser	Ser	Tyr	Ala	Asn	Arg	Arg	Pro	Cys	Phe	Ser	Ser
				485					490					495	
Leu	Val	Val	Asp	Glu	Thr	Tyr	Val	Pro	Pro	Ala	Phe	Ser	Asp	Asp	Lys
			500					505					510		
Phe	Ile	Phe	His	Lys	Asp	Leu	Cys	Gln	Ala	Gln	Gly	Val	Ala	Leu	Gln
		515					520					525			
Thr	Met	Lys	Gln	Glu	Phe	Leu	Ile	Asn	Leu	Val	Lys	Gln	Lys	Pro	Gln
	530					535					540				
Ile	Thr	Glu	Glu	Gln	Leu	Glu	Ala	Val	Ile	Ala	Asp	Phe	Ser	Gly	Leu
545					550					555					560
Leu	Glu	Lys	Cys	Cys	Gln	Gly	Gln	Glu	Gln	Glu	Val	Cys	Phe	Ala	Glu
			565					570						575	
Glu	Gly	Gln	Lys	Leu	Ile	Ser	Lys	Thr	Arg	Ala	Ala	Leu	Gly	Val	
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 <213> Homo sapiens

<400> 9

Arg	Thr	Leu	His	Arg	Asn	Glu	Tyr	Gly	Ile	Ala	Ser	Ile	Leu	Asp	Ser
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Phe	Ala	Gln	Phe	Val	Gln	Glu	Ala	Thr	Tyr	Lys	Glu	Val	Ser	Lys	Met
		35					40					45			
Val	Lys	Asp	Ala	Leu	Thr	Ala	Ile	Glu	Lys	Pro	Thr	Gly	Asp	Glu	Gln
	50					55					60				
Ser	Ser	Gly	Cys	Leu	Glu	Asn	Gln	Leu	Pro	Ala	Phe	Leu	Glu	Glu	Leu
65					70					75					80
Cys	His	Glu	Lys	Glu	Ile	Leu	Glu	Lys	Tyr	Gly	His	Ser	Asp	Cys	Cys
				85					90					95	
Ser	Gln	Ser	Glu	Gly	Arg	His	Asn	Cys	Phe	Leu	Ala	His	Lys	Lys	
			100				105						110		
Pro	Thr	Pro	Ala	Ser	Ile	Pro	Leu	Phe	Gln	Val	Pro	Glu	Pro	Val	Thr
		115					120					125			
Ser	Cys	Glu	Ala	Tyr	Glu	Glu	Asp	Arg	Glu	Thr	Phe	Met	Asn	Lys	Phe
	130					135					140				
Ile	Tyr	Glu	Ile	Ala	Arg	Arg	His	Pro	Phe	Leu	Tyr	Ala	Pro	Thr	Ile
145					150					155					160
Leu	Leu	Trp	Ala	Ala	Arg	Tyr	Asp	Lys	Ile	Ile	Pro	Ser	Cys	Cys	Lys
			165						170					175	
Ala	Glu	Asn	Ala	Val	Glu	Cys	Phe	Gln	Thr	Lys	Ala	Ala	Thr	Val	Thr

Lys Glu Leu Arg Glu Ser
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 185
 190
 195

<210> 10
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 <212> PRT
 <213> Homo sapiens

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 Arg Thr Phe Gln Ala Ile Thr Val Thr Lys Leu Ser Gln Lys Phe Thr
 20 25 30
 Lys Val Asn Phe Thr Glu Ile Gln Lys Leu Val Leu Asp Val Ala His
 35 40 45
 Val His Glu His Cys Cys Arg Gly Asp Val Leu Asp Cys Leu Gln Asp
 50 55 60
 Gly Glu Lys Ile Met Ser Tyr Ile Cys Ser Gln Gln Asp Thr Leu Ser
 65 70 75 80
 Asn Lys Ile Thr Glu Cys Cys Lys Leu Thr Thr Leu Glu Arg Gly Gln
 85 90 95
 Cys Ile Ile His Ala Glu Asn Asp Glu Lys Pro Glu Gly Leu Ser Pro
 100 105 110
 Asn Leu Asn Arg Phe Leu Gly Asp Arg Asp Phe Asn Gln Phe Ser Ser
 115 120 125
 Gly Glu Lys Asn Ile Phe Leu Ala Ser Phe Val His Glu Tyr Ser Arg
 130 135 140
 Arg His Pro Gln Leu Ala Val Ser Val Ile Leu Arg Val Ala Lys Gly
 145 150 155 160
 Tyr Gln Glu Leu Leu Glu Lys Cys Phe Gln Thr Glu Asn Pro Leu Glu
 165 170 175
 Cys Gln Asp Lys Gly Glu Glu Glu Leu Gln Lys Tyr Ile Gln Glu Ser
 180 185 190

<210> 11
 <211> 201
 <212> PRT
 <213> Homo sapiens

<400> 11
 Gln Ala Leu Ala Lys Arg Ser Cys Gly Leu Phe Gln Lys Leu Gly Glu
 1 5 10 15
 Tyr Tyr Leu Gln Asn Glu Phe Leu Val Ala Tyr Thr Lys Lys Ala Pro
 20 25 30
 Gln Leu Thr Ser Ser Ala Leu Met Ala Ile Thr Arg Lys Met Ala Ala
 35 40 45
 Thr Ala Ala Thr Cys Cys Gln Leu Ser Glu Asp Lys Leu Leu Ala Cys
 50 55 60
 Gly Glu Gly Ala Ala Asp Ile Ile Ile Gly His Leu Cys Ile Arg His
 65 70 75 80
 Glu Met Thr Pro Val Asn Pro Gly Val Gly Gln Cys Cys Thr Ser Ser
 85 90 95
 Tyr Ala Asn Arg Arg Pro Cys Phe Ser Ser Leu Val Val Asp Glu Thr
 100 105 110
 Tyr Val Pro Pro Ala Phe Ser Asp Asp Lys Phe Ile Phe His Lys Asp
 115 120 125

Leu	Cys	Gln	Ala	Gln	Gly	Val	Ala	Leu	Gln	Thr	Met	Lys	Gln	Glu	Phe
130					135						140				
Leu	Ile	Asn	Leu	Val	Lys	Gln	Lys	Pro	Gln	Ile	Thr	Glu	Glu	Gln	Leu
145					150					155					160
Glu	Ala	Val	Ile	Ala	Asp	Phe	Ser	Gly	Leu	Leu	Glu	Lys	Cys	Cys	Gln
				165					170					175	
Gly	Gln	Glu	Gln	Glu	Val	Cys	Phe	Ala	Glu	Glu	Gly	Gln	Lys	Leu	Ile
			180					185					190		
Ser	Lys	Thr	Arg	Ala	Ala	Leu	Gly	Val							
	195						200								

<210> 12
 <211> 390
 <212> PRT
 <213> Homo sapiens

<400> 12

Arg	Thr	Leu	His	Arg	Asn	Glu	Tyr	Gly	Ile	Ala	Ser	Ile	Leu	Asp	Ser
1				5					10					15	
Tyr	Gln	Cys	Thr	Ala	Glu	Ile	Ser	Leu	Ala	Asp	Leu	Ala	Thr	Ile	Phe
			20					25					30		
Phe	Ala	Gln	Phe	Val	Gln	Glu	Ala	Thr	Tyr	Lys	Glu	Val	Ser	Lys	Met
	35						40					45			
Val	Lys	Asp	Ala	Leu	Thr	Ala	Ile	Glu	Lys	Pro	Thr	Gly	Asp	Glu	Gln
	50					55					60				
Ser	Ser	Gly	Cys	Leu	Glu	Asn	Gln	Leu	Pro	Ala	Phe	Leu	Glu	Glu	Leu
65					70				75						80
Cys	His	Glu	Lys	Glu	Ile	Leu	Glu	Lys	Tyr	Gly	His	Ser	Asp	Cys	Cys
				85					90					95	
Ser	Gln	Ser	Glu	Glu	Gly	Arg	His	Asn	Cys	Phe	Leu	Ala	His	Lys	Lys
			100					105					110		
Pro	Thr	Pro	Ala	Ser	Ile	Pro	Leu	Phe	Gln	Val	Pro	Glu	Pro	Val	Thr
		115					120						125		
Ser	Cys	Glu	Ala	Tyr	Glu	Glu	Asp	Arg	Glu	Thr	Phe	Met	Asn	Lys	Phe
	130					135					140				
Ile	Tyr	Glu	Ile	Ala	Arg	Arg	His	Pro	Phe	Leu	Tyr	Ala	Pro	Thr	Ile
145					150					155					160
Leu	Leu	Trp	Ala	Ala	Arg	Tyr	Asp	Lys	Ile	Ile	Pro	Ser	Cys	Cys	Lys
				165					170					175	
Ala	Glu	Asn	Ala	Val	Glu	Cys	Phe	Gln	Thr	Lys	Ala	Ala	Thr	Val	Thr
			180					185					190		
Lys	Glu	Leu	Arg	Glu	Ser	Ser	Leu	Leu	Asn	Gln	His	Ala	Cys	Ala	Val
		195					200					205			
Met	Lys	Asn	Phe	Gly	Thr	Arg	Thr	Phe	Gln	Ala	Ile	Thr	Val	Thr	Lys
	210					215					220				
Leu	Ser	Gln	Lys	Phe	Thr	Lys	Val	Asn	Phe	Thr	Glu	Ile	Gln	Lys	Leu
225					230					235					240
Val	Leu	Asp	Val	Ala	His	Val	His	Glu	His	Cys	Cys	Arg	Gly	Asp	Val
				245					250					255	
Leu	Asp	Cys	Leu	Gln	Asp	Gly	Glu	Lys	Ile	Met	Ser	Tyr	Ile	Cys	Ser
			260					265					270		
Gln	Gln	Asp	Thr	Leu	Ser	Asn	Lys	Ile	Thr	Glu	Cys	Cys	Lys	Leu	Thr
			275				280					285			
Thr	Leu	Glu	Arg	Gly	Gln	Cys	Ile	Ile	His	Ala	Glu	Asn	Asp	Glu	Lys
	290					295					300				
Pro	Glu	Gly	Leu	Ser	Pro	Asn	Leu	Asn	Arg	Phe	Leu	Gly	Asp	Arg	Asp
305					310					315					320
Phe	Asn	Gln	Phe	Ser	Ser	Gly	Glu	Lys	Asn	Ile	Phe	Leu	Ala	Ser	Phe

Val	His	Glu	Tyr	Ser	Arg	Arg	His	Pro	Gln	Leu	Ala	Val	Ser	Val	Ile
			340					345					350		
Leu	Arg	Val	Ala	Lys	Gly	Tyr	Gln	Glu	Leu	Leu	Glu	Lys	Cys	Phe	Gln
		355					360					365			
Thr	Glu	Asn	Pro	Leu	Glu	Cys	Gln	Asp	Lys	Gly	Glu	Glu	Glu	Leu	Gln
	370					375					380				
Lys	Tyr	Ile	Gln	Glu	Ser										
385					390										

<210> 13
 <211> 393
 <212> PRT
 <213> Homo sapiens

<400> 13

Ser	Leu	Leu	Asn	Gln	His	Ala	Cys	Ala	Val	Met	Lys	Asn	Phe	Gly	Thr
1			5						10					15	
Arg	Thr	Phe	Gln	Ala	Ile	Thr	Val	Thr	Lys	Leu	Ser	Gln	Lys	Phe	Thr
			20					25					30		
Lys	Val	Asn	Phe	Thr	Glu	Ile	Gln	Lys	Leu	Val	Leu	Asp	Val	Ala	His
		35					40					45			
Val	His	Glu	His	Cys	Cys	Arg	Gly	Asp	Val	Leu	Asp	Cys	Leu	Gln	Asp
	50					55					60				
Gly	Glu	Lys	Ile	Met	Ser	Tyr	Ile	Cys	Ser	Gln	Gln	Asp	Thr	Leu	Ser
65				70					75						80
Asn	Lys	Ile	Thr	Glu	Cys	Cys	Lys	Leu	Thr	Thr	Leu	Glu	Arg	Gly	Gln
				85					90					95	
Cys	Ile	Ile	His	Ala	Glu	Asn	Asp	Glu	Lys	Pro	Glu	Gly	Leu	Ser	Pro
			100					105					110		
Asn	Leu	Asn	Arg	Phe	Leu	Gly	Asp	Arg	Asp	Phe	Asn	Gln	Phe	Ser	Ser
		115					120						125		
Gly	Glu	Lys	Asn	Ile	Phe	Leu	Ala	Ser	Phe	Val	His	Glu	Tyr	Ser	Arg
	130					135					140				
Arg	His	Pro	Gln	Leu	Ala	Val	Ser	Val	Ile	Leu	Arg	Val	Ala	Lys	Gly
145					150					155					160
Tyr	Gln	Glu	Leu	Leu	Glu	Lys	Cys	Phe	Gln	Thr	Glu	Asn	Pro	Leu	Glu
			165						170					175	
Cys	Gln	Asp	Lys	Gly	Glu	Glu	Glu	Leu	Gln	Lys	Tyr	Ile	Gln	Glu	Ser
			180					185					190		
Gln	Ala	Leu	Ala	Lys	Arg	Ser	Cys	Gly	Leu	Phe	Gln	Lys	Leu	Gly	Glu
		195					200					205			
Tyr	Tyr	Leu	Gln	Asn	Glu	Phe	Leu	Val	Ala	Tyr	Thr	Lys	Lys	Ala	Pro
	210					215					220				
Gln	Leu	Thr	Ser	Ser	Ala	Leu	Met	Ala	Ile	Thr	Arg	Lys	Met	Ala	Ala
225					230					235					240
Thr	Ala	Ala	Thr	Cys	Cys	Gln	Leu	Ser	Glu	Asp	Lys	Leu	Leu	Ala	Cys
				245					250					255	
Gly	Glu	Gly	Ala	Ala	Asp	Ile	Ile	Ile	Gly	His	Leu	Cys	Ile	Arg	His
			260					265					270		
Glu	Met	Thr	Pro	Val	Asn	Pro	Gly	Val	Gly	Gln	Cys	Cys	Thr	Ser	Ser
		275					280					285			
Tyr	Ala	Asn	Arg	Arg	Pro	Cys	Phe	Ser	Ser	Leu	Val	Val	Asp	Glu	Thr
	290					295					300				
Tyr	Val	Pro	Pro	Ala	Phe	Ser	Asp	Asp	Lys	Phe	Ile	Phe	His	Lys	Asp
305					310					315					320
Leu	Cys	Gln	Ala	Gln	Gly	Val	Ala	Leu	Gln	Thr	Met	Lys	Gln	Glu	Phe
				325					330						335

Leu Ile Asn Leu Val Lys Gln Lys Pro Gln Ile Thr Glu Glu Gln Leu
 340 345 350
 Glu Ala Val Ile Ala Asp Phe Ser Gly Leu Leu Glu Lys Cys Cys Gln
 355 360 365
 Gly Gln Glu Gln Glu Val Cys Phe Ala Glu Glu Gly Gln Lys Leu Ile
 370 375 380
 Ser Lys Thr Arg Ala Ala Leu Gly Val
 385 390

<210> 14
 <211> 325
 <212> PRT
 <213> Homo sapiens

<400> 14
 Met Ser Tyr Ile Cys Ser Gln Gln Asp Thr Leu Ser Asn Lys Ile Thr
 1 5 10 15
 Glu Cys Cys Lys Leu Thr Thr Leu Glu Arg Gly Gln Cys Ile Ile His
 20 25 30
 Ala Glu Asn Asp Glu Lys Pro Glu Gly Leu Ser Pro Asn Leu Asn Arg
 35 40 45
 Phe Leu Gly Asp Arg Asp Phe Asn Gln Phe Ser Ser Gly Glu Lys Asn
 50 55 60
 Ile Phe Leu Ala Ser Phe Val His Glu Tyr Ser Arg Arg His Pro Gln
 65 70 75 80
 Leu Ala Val Ser Val Ile Leu Arg Val Ala Lys Gly Tyr Gln Glu Leu
 85 90 95
 Leu Glu Lys Cys Phe Gln Thr Glu Asn Pro Leu Glu Cys Gln Asp Lys
 100 105 110
 Gly Glu Glu Glu Leu Gln Lys Tyr Ile Gln Glu Ser Gln Ala Leu Ala
 115 120 125
 Lys Arg Ser Cys Gly Leu Phe Gln Lys Leu Gly Glu Tyr Tyr Leu Gln
 130 135 140
 Asn Glu Phe Leu Val Ala Tyr Thr Lys Lys Ala Pro Gln Leu Thr Ser
 145 150 155 160
 Ser Ala Leu Met Ala Ile Thr Arg Lys Met Ala Ala Thr Ala Ala Thr
 165 170 175
 Cys Cys Gln Leu Ser Glu Asp Lys Leu Leu Ala Cys Gly Glu Gly Ala
 180 185 190
 Ala Asp Ile Ile Ile Gly His Leu Cys Ile Arg His Glu Met Thr Pro
 195 200 205
 Val Asn Pro Gly Val Gly Gln Cys Cys Thr Ser Ser Tyr Ala Asn Arg
 210 215 220
 Arg Pro Cys Phe Ser Ser Leu Val Val Asp Glu Thr Tyr Val Pro Pro
 225 230 235 240
 Ala Phe Ser Asp Asp Lys Phe Ile Phe His Lys Asp Leu Cys Gln Ala
 245 250 255
 Gln Gly Val Ala Leu Gln Thr Met Lys Gln Glu Phe Leu Ile Asn Leu
 260 265 270
 Val Lys Gln Lys Pro Gln Ile Thr Glu Glu Gln Leu Glu Ala Val Ile
 275 280 285
 Ala Asp Phe Ser Gly Leu Leu Glu Lys Cys Cys Gln Gly Gln Glu Gln
 290 295 300
 Glu Val Cys Phe Ala Glu Glu Gly Gln Lys Leu Ile Ser Lys Thr Arg
 305 310 315 320
 Ala Ala Leu Gly Val
 325

<210> 15
 <211> 192
 <212> PRT
 <213> Homo sapiens

<400> 15
 Ser Leu Leu Asn Gln His Ala Cys Ala Val Met Lys Asn Phe Gly Thr
 1 5 10 15
 Arg Thr Phe Gln Ala Ile Thr Val Thr Lys Leu Ser Gln Lys Phe Thr
 20 25 30
 Lys Val Gln Phe Thr Glu Ile Gln Lys Leu Val Leu Asp Val Ala His
 35 40 45
 Val His Glu His Cys Cys Arg Gly Asp Val Leu Asp Cys Leu Gln Asp
 50 55 60
 Gly Glu Lys Ile Met Ser Tyr Ile Cys Ser Gln Gln Asp Thr Leu Ser
 65 70 75 80
 Asn Lys Ile Thr Glu Cys Cys Lys Leu Thr Thr Leu Glu Arg Gly Gln
 85 90 95
 Cys Ile Ile His Ala Glu Asn Asp Glu Lys Pro Glu Gly Leu Ser Pro
 100 105 110
 Asn Leu Asn Arg Phe Leu Gly Asp Arg Asp Phe Asn Gln Phe Ser Ser
 115 120 125
 Gly Glu Lys Asn Ile Phe Leu Ala Ser Phe Val His Glu Tyr Ser Arg
 130 135 140
 Arg His Pro Gln Leu Ala Val Ser Val Ile Leu Arg Val Ala Lys Gly
 145 150 155 160
 Tyr Gln Glu Leu Leu Glu Lys Cys Phe Gln Thr Glu Asn Pro Leu Glu
 165 170 175
 Cys Gln Asp Lys Gly Glu Glu Glu Leu Gln Lys Tyr Ile Gln Glu Ser
 180 185 190

<210> 16
 <211> 390
 <212> PRT
 <213> Homo sapiens

<400> 16
 Arg Thr Leu His Arg Asn Glu Tyr Gly Ile Ala Ser Ile Leu Asp Ser
 1 5 10 15
 Tyr Gln Cys Thr Ala Glu Ile Ser Leu Ala Asp Leu Ala Thr Ile Phe
 20 25 30
 Phe Ala Gln Phe Val Gln Glu Ala Thr Tyr Lys Glu Val Ser Lys Met
 35 40 45
 Val Lys Asp Ala Leu Thr Ala Ile Glu Lys Pro Thr Gly Asp Glu Gln
 50 55 60
 Ser Ser Gly Cys Leu Glu Asn Gln Leu Pro Ala Phe Leu Glu Glu Leu
 65 70 75 80
 Cys His Glu Lys Glu Ile Leu Glu Lys Tyr Gly His Ser Asp Cys Cys
 85 90 95
 Ser Gln Ser Glu Glu Gly Arg His Asn Cys Phe Leu Ala His Lys Lys
 100 105 110
 Pro Thr Pro Ala Ser Ile Pro Leu Phe Gln Val Pro Glu Pro Val Thr
 115 120 125
 Ser Cys Glu Ala Tyr Glu Glu Asp Arg Glu Thr Phe Met Asn Lys Phe
 130 135 140
 Ile Tyr Glu Ile Ala Arg Arg His Pro Phe Leu Tyr Ala Pro Thr Ile
 145 150 155 160
 Leu Leu Trp Ala Ala Arg Tyr Asp Lys Ile Ile Pro Ser Cys Cys Lys

Ala	Glu	Asn	Ala	Val	Glu	Cys	Phe	Gln	Thr	Lys	Ala	Ala	Thr	Val	Thr
			165						170					175	
Lys	Glu	Leu	Arg	Glu	Ser	Ser	Leu	Leu	Asn	Gln	His	Ala	Cys	Ala	Val
		195					200					205			
Met	Lys	Asn	Phe	Gly	Thr	Arg	Thr	Phe	Gln	Ala	Ile	Thr	Val	Thr	Lys
	210					215					220				
Leu	Ser	Gln	Lys	Phe	Thr	Lys	Val	Gln	Phe	Thr	Glu	Ile	Gln	Lys	Leu
225					230				235						240
Val	Leu	Asp	Val	Ala	His	Val	His	Glu	His	Cys	Cys	Arg	Gly	Asp	Val
			245					250						255	
Leu	Asp	Cys	Leu	Gln	Asp	Gly	Glu	Lys	Ile	Met	Ser	Tyr	Ile	Cys	Ser
		260						265					270		
Gln	Gln	Asp	Thr	Leu	Ser	Asn	Lys	Ile	Thr	Glu	Cys	Cys	Lys	Leu	Thr
	275						280					285			
Thr	Leu	Glu	Arg	Gly	Gln	Cys	Ile	Ile	His	Ala	Glu	Asn	Asp	Glu	Lys
	290					295					300				
Pro	Glu	Gly	Leu	Ser	Pro	Asn	Leu	Asn	Arg	Phe	Leu	Gly	Asp	Arg	Asp
305					310					315					320
Phe	Asn	Gln	Phe	Ser	Ser	Gly	Glu	Lys	Asn	Ile	Phe	Leu	Ala	Ser	Phe
			325					330						335	
Val	His	Glu	Tyr	Ser	Arg	Arg	His	Pro	Gln	Leu	Ala	Val	Ser	Val	Ile
		340					345					350			
Leu	Arg	Val	Ala	Lys	Gly	Tyr	Gln	Glu	Leu	Leu	Glu	Lys	Cys	Phe	Gln
		355					360				365				
Thr	Glu	Asn	Pro	Leu	Glu	Cys	Gln	Asp	Lys	Gly	Glu	Glu	Glu	Leu	Gln
	370					375					380				
Lys	Tyr	Ile	Gln	Glu	Ser										
385					390										

<210> 17

<211> 393

<212> PRT

<213> Homo sapiens

<400> 17

Ser	Leu	Leu	Asn	Gln	His	Ala	Cys	Ala	Val	Met	Lys	Asn	Phe	Gly	Thr
1			5					10						15	
Arg	Thr	Phe	Gln	Ala	Ile	Thr	Val	Thr	Lys	Leu	Ser	Gln	Lys	Phe	Thr
		20					25					30			
Lys	Val	Gln	Phe	Thr	Glu	Ile	Gln	Lys	Leu	Val	Leu	Asp	Val	Ala	His
		35					40				45				
Val	His	Glu	His	Cys	Cys	Arg	Gly	Asp	Val	Leu	Asp	Cys	Leu	Gln	Asp
	50					55				60					
Gly	Glu	Lys	Ile	Met	Ser	Tyr	Ile	Cys	Ser	Gln	Gln	Asp	Thr	Leu	Ser
65				70				75						80	
Asn	Lys	Ile	Thr	Glu	Cys	Cys	Lys	Leu	Thr	Thr	Leu	Glu	Arg	Gly	Gln
			85					90					95		
Cys	Ile	Ile	His	Ala	Glu	Asn	Asp	Glu	Lys	Pro	Glu	Gly	Leu	Ser	Pro
			100					105					110		
Asn	Leu	Asn	Arg	Phe	Leu	Gly	Asp	Arg	Asp	Phe	Asn	Gln	Phe	Ser	Ser
		115					120					125			
Gly	Glu	Lys	Asn	Ile	Phe	Leu	Ala	Ser	Phe	Val	His	Glu	Tyr	Ser	Arg
	130					135					140				
Arg	His	Pro	Gln	Leu	Ala	Val	Ser	Val	Ile	Leu	Arg	Val	Ala	Lys	Gly
145					150					155					160
Tyr	Gln	Glu	Leu	Leu	Glu	Lys	Cys	Phe	Gln	Thr	Glu	Asn	Pro	Leu	Glu
			165						170					175	

Cys	Gln	Asp	Lys	Gly	Glu	Glu	Glu	Leu	Gln	Lys	Tyr	Ile	Gln	Glu	Ser	
			180					185					190			
Gln	Ala	Leu	Ala	Lys	Arg	Ser	Cys	Gly	Leu	Phe	Gln	Lys	Leu	Gly	Glu	
		195					200					205				
Tyr	Tyr	Leu	Gln	Asn	Ala	Phe	Leu	Val	Ala	Tyr	Thr	Lys	Lys	Ala	Pro	
	210					215					220					
Gln	Leu	Thr	Ser	Ser	Glu	Leu	Met	Ala	Ile	Thr	Arg	Lys	Met	Ala	Ala	
225					230					235					240	
Thr	Ala	Ala	Thr	Cys	Cys	Gln	Leu	Ser	Glu	Asp	Lys	Leu	Leu	Ala	Cys	
				245					250					255		
Gly	Glu	Gly	Ala	Ala	Asp	Ile	Ile	Ile	Gly	His	Leu	Cys	Ile	Arg	His	
			260					265					270			
Glu	Met	Thr	Pro	Val	Asn	Pro	Gly	Val	Gly	Gln	Cys	Cys	Thr	Ser	Ser	
		275					280					285				
Tyr	Ala	Asn	Arg	Arg	Pro	Cys	Phe	Ser	Ser	Leu	Val	Val	Asp	Glu	Thr	
	290					295					300					
Tyr	Val	Pro	Pro	Ala	Phe	Ser	Asp	Asp	Lys	Phe	Ile	Phe	His	Lys	Asp	
305					310					315					320	
Leu	Cys	Gln	Ala	Gln	Gly	Val	Ala	Leu	Gln	Thr	Met	Lys	Gln	Glu	Phe	
				325					330					335		
Leu	Ile	Asn	Leu	Val	Lys	Gln	Lys	Pro	Gln	Ile	Thr	Glu	Glu	Gln	Leu	
			340					345					350			
Glu	Ala	Val	Ile	Ala	Asp	Phe	Ser	Gly	Leu	Leu	Glu	Lys	Cys	Cys	Gln	
		355					360					365				
Gly	Gln	Glu	Gln	Glu	Val	Cys	Phe	Ala	Glu	Glu	Gly	Gln	Lys	Leu	Ile	
	370					375					380					
Ser	Lys	Thr	Arg	Ala	Ala	Leu	Gly	Val								
385					390											

<210> 18
 <211> 30
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Synthetic

<400> 18
 atgaagtggg tggaatcaat ttttttaatt

30

<210> 19
 <211> 28
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Synthetic

<400> 19
 attcatttat gagatagcaa gaaggcat

28

<210> 20
 <211> 29
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Synthetic

<400> 20
 aaaaaatcat gtcctacata tggttctcaa 29
 <210> 21
 <211> 21
 <212> DNA
 <213> Artificial Sequence
 <220>
 <223> Synthetic
 <400> 21
 aaactcgaga agtgggtgga a 21
 <210> 22
 <211> 24
 <212> DNA
 <213> Artificial Sequence
 <220>
 <223> Synthetic
 <400> 22
 aaactcgagt taaactccca aagc 24
 <210> 23
 <211> 27
 <212> DNA
 <213> Artificial Sequence
 <220>
 <223> Synthetic
 <400> 23
 gattgacaag taatacgctg tttcctc 27
 <210> 24
 <211> 27
 <212> DNA
 <213> Artificial Sequence
 <220>
 <223> Synthetic
 <400> 24
 tttgtaaacc tcttgtaaag ttacaag 27
 <210> 25
 <211> 21
 <212> DNA
 <213> Artificial Sequence
 <220>
 <223> Synthetic
 <400> 25
 ccaggcacag tctctagtct a 21
 <210> 26

<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 26
ggacaggacc aagtacaggc t

21